

Work Order ID 71313

Tuesday, June 28, 2011 9:58:40 AM



Page 1

Item ID: D3391-021

Accept



Setup Start



Revision ID:

Stop



Item Name: Fwd Tube Assembly

Start Date: 6/28/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 7/28/2011 Req'd Qty: 1.00

Customer:

Reference:

Approvals: Process Plan: *mf*

Date: 11-06-28 Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D3391	Rev H

100		0.00
	Skidtubes	
Skidtubes	Memo	0.00
Skidtubes	Cut extrusion to 46.52 +0.010 -0.020	

DP

11-6-28

110		0.00
	BENDING MACHINE - SKIDTUBES	
CNC Bend 1	Memo	0.00
CNC Delta 100 Bender	Bend as per Dwg D3391 Using Bend Prog 3391021	

DP

11-6-28

120		0.00
	QC5- Inspect part completeness to step on W/O	
QC	Memo	0.00
Quality Control		

1 0 JE 11/06/28

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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NOTE: Date & initial all entries

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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 HAAS I HAAS CNC vertical machine #1	HAAS CNC VERTICAL MACHINING #1 Memo 1-Machine as per Folio FA590 Rev. <u>AA</u> & Dwg D3391 Rev. <u>H</u> Identify as D3391-1 2-Deburr	0.00 0.00		B.A 11/06/29		1	0		
140 QC Quality Control	QC2- Inspect parts off machine FAI/FAIB Memo	0.00 0.00		B.A 11/06/29		1	0		
150 Mill Conv Conventional Milling Machine	CONVENTIONAL MILLING MACHINE Memo Drill X1 Aft cap as per Dwg D3391 .1875" dia	0.00 0.00		BA 11/06/29		1			

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Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

160

QC2- Inspect parts off machine FAI/FAIB

0.00



QC

Memo

0.00

Quality Control

11/06/29

1

170

QC8- Inspect parts - second check

0.00



QC

Memo

0.00

Quality Control

Jun 11.06.29 @

W/O:		WORK ORDER CHANGES					
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Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

180



Skidtubes

Skidtubes

0.00

Memo

0.00

1-Drill float bag holes as per Dwg D3391 using DT8798(Do not open tow cap holes to finish size)
(ONLY DRILL HOLES MARKED "A")

2-Drill Remaining two holes for tow cap using DT 8819 Locating off of .1875" holes drilled in previous step

3-Open tow cap holes to .208" as per Dwg D3391

4-Open Tow Ring hole to .640" as per Dwg D3391

5- open float bag holes 0.328" and counter sink as per dwg D3391

6-Deburr & Scribe Batch number Inside aft end.

7-Transfer drill D3391-021 with D3391-023

SAJ 11-06-30

DP 11-6-30

190



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

8/10/30

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Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

200

Chemical Conversion Coat per QSI005 4.1

0.00



HandFinish

Memo

0.00

Hand Finishing

1 0 SAD 11-06-30

210

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

DP 11-6-30

220

Skidtubes

0.00



Skidtubes

Memo

0.00

Skidtubes

1-instal spacers as per dwg D3391

A/R Magnabond 6398 batch: 116677

exp. date: 11/08

cure time 12hrs. as per QSI015

2- grind crossbolt flush

3-back drill crossbolt if necessary

3 DL 11/06/30
3 DL 11/07/04

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Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

230

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

Subtotal

235

Pressure Wash per QSI005 4.3

0.00



HandFinish

Memo

0.00

Hand Finishing

AND REALODINE AS PER PAR09-043

1 BL 11-7-H

240

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00



Powdercoat

Memo

0.00

Powder Coating

START TIME:
OVEN TEMPERATURE:
FINISH TIME:

11:15
320 °F
11:45

1X ✓ M-11/07/05

M117745

W/O:		WORK ORDER CHANGES					
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[REDACTED]

Tuesday, June 28, 2011 9:58:40 AM

[illegible]

1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

2. Once the problem is identified, the next step is to define the objectives and goals of the project. This helps to clarify what needs to be achieved and provides a clear direction for the work.

3. The third step is to develop a plan or strategy to address the problem. This involves breaking down the problem into smaller, manageable tasks and determining the resources needed to complete them.

4. The fourth step is to implement the plan. This involves putting the strategy into action and monitoring progress to ensure that the objectives are being met.

5. The final step is to evaluate the results of the project. This involves assessing the outcomes against the objectives and identifying any areas for improvement or further action.

Stop

1. The first step is to identify the problem. This involves understanding the current situation and what needs to be changed.

1000

Customer:

Run Start

Stop



**Insp.
Stamp**

1 ϕ ad 11.07/0.6

[REDACTED]

QC

Memo

0.00

Quality Control

0.00

[illegible]

Skidtubes

Skidtubes

Memo

0.00

Skidtubes

✓ **** install D3591-1 spacer as per DS19364 and wearplate and gasket as per DWG ****

11/07/08

0.00

Abstract—The purpose of this study was to determine whether there were differences in the prevalence of musculoskeletal disorders among different types of workers. The study included 600 employees from three companies who performed different types of work. Data were collected by means of a self-administered questionnaire. Results showed that the prevalence of musculoskeletal disorders was higher among those who performed manual work than among those who performed nonmanual work. The results also showed that the prevalence of musculoskeletal disorders was higher among those who worked in the manufacturing industry than among those who worked in the service industry. The results suggest that there are differences in the prevalence of musculoskeletal disorders among different types of workers.

OC

Memo

0.00

Quality Control

8 ulozloz

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Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

260

Identify as per dwg & Stock Location: W/O

0.00

D412-742-013/B71323



Packaging

Memo

0.00

Packaging

280

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

11/7/11

ME
11-07-07

W/O:		WORK ORDER CHANGES					
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Picklist Print

Tuesday, June 28, 2011 9:58:37 AM

Page 1

Work Order ID: 71313

Parent Item: D3391-021

Parent Item Name: Fwd Tube Assembly

Start Date: 6/28/2011

Required Date: 7/28/2011

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP A 05.09.13 New issue KJ/JLM
 IPP B 06.02.10 Dwg rev.D ecn 773 EC
 IPP C 06.05.02 Added inspections EC
 IPP D 07.03.13 rev F dwg EC
 IPP E 07.11.07 revG dwg ecn1053P EC verified by: DD
 IPP Rev:f ECN 1056 07-11-12 DD verified by: EC
 IPP Rev:G 08-09-08 new process (ecn 08-510) DD verified by:EC
 IPP Rev:H 08-09-10 revH as per dwg DD verified by:EC
 IPP Rev J 09.02.02 added hardware EC verified by: DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D6013-047

Manufactured

No

100

Each

18.0000

1

1



Skidtube Material

Location

Loc Qty

Loc Code

LG

18

26547

18

D3670-4-200

Manufactured

No

220

Each

38.0000

4

4



SPACER

Location

Loc Qty

Loc Code

LG

38

70822

38

D3401-041

Manufactured

No

255

Each

2.0000

1

1



Tow Cap Assembly

Location

Loc Qty

Loc Code

FP007

2

61505

2

Handwritten notes and signatures: 11-6-28, 11/06/30, 11/07/06, and various initials.

W/O:		WORK ORDER CHANGES					
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Tuesday, June 28, 2011 9:58:37 AM

Page 2

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Parent Item: D3391-021

Parent Item Name: Fwd Tube Assembly

Start Date: 6/28/2011

Required Date: 7/28/2011

Start Qty: 1.00

Required Qty: 1.00

D3564-13
Wearshoe

Manufactured No

255

Each

16.0000

1

1



HL 6/27/06

Location

Loc Qty

Loc Code

FP016

16

69280

16

1

D3566-13
Gasket

Manufactured No

255

Each

26.0000

1

1



HL 6/27/06

Location

Loc Qty

Loc Code

FP

24

69281

24

1

FP014

2

68341

2

AN960C10L
washer
AN3C4A
BOLT

NAS1149C0332
R

Purchased No

255

Each

0.0000

10

10

117460



(x10) HL 6/27/06

Purchased No

255

Each

2,162.000

10

10



HL 6/27/06

Location

Loc Qty

Loc Code

ST350

2162

117313

2

117688

776

117795

500

117872

22

118012

500

118112

362

x10

Tuesday, June 28, 2011 9:58:38 AM

Shop Packet Print

Page 2

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Parent Item: D3391-021



Parent Item Name: Fwd Tube Assembly

Start Date: 6/28/2011

Required Date: 7/28/2011

Start Qty: 1.00

Required Qty: 1.00

D3672-1 Manufactured No

255

Each

1,122.000

4

4



Phenolic Washer



21 1107106

Location

Loc Qty

Loc Code

ST074

1096

64177

596

24

66821

500

ST077

26

52505

26

AELS-1032-130 Purchased No

255

Each

0.0000

2

2



21 117717



(x2) 21 1107106

INSERT

AELS-1032-225 Purchased No

255

Each

0.0000

10

10



21 117717



(x10) 21 1107106

INSERT

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

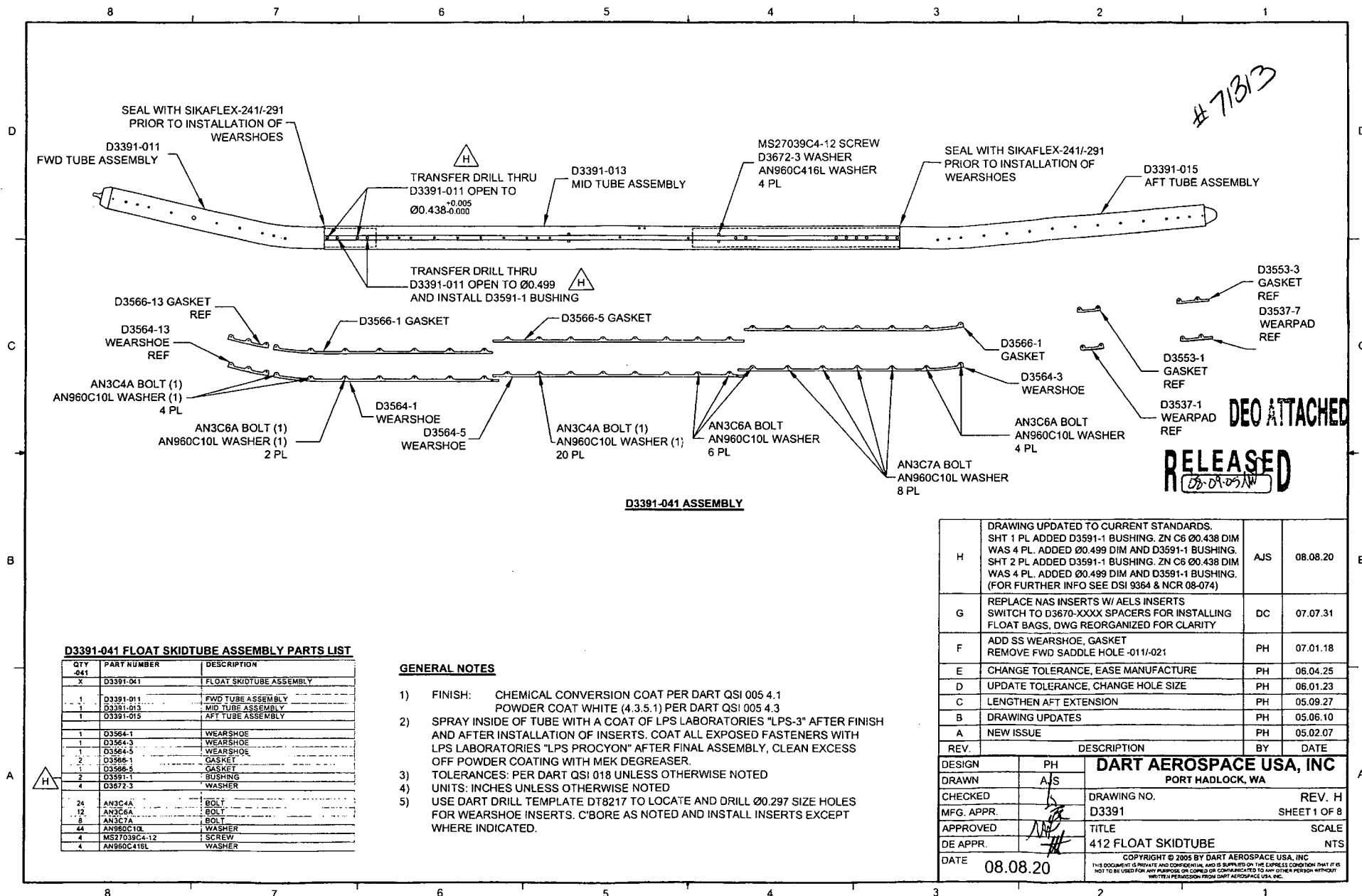
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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5/3/5



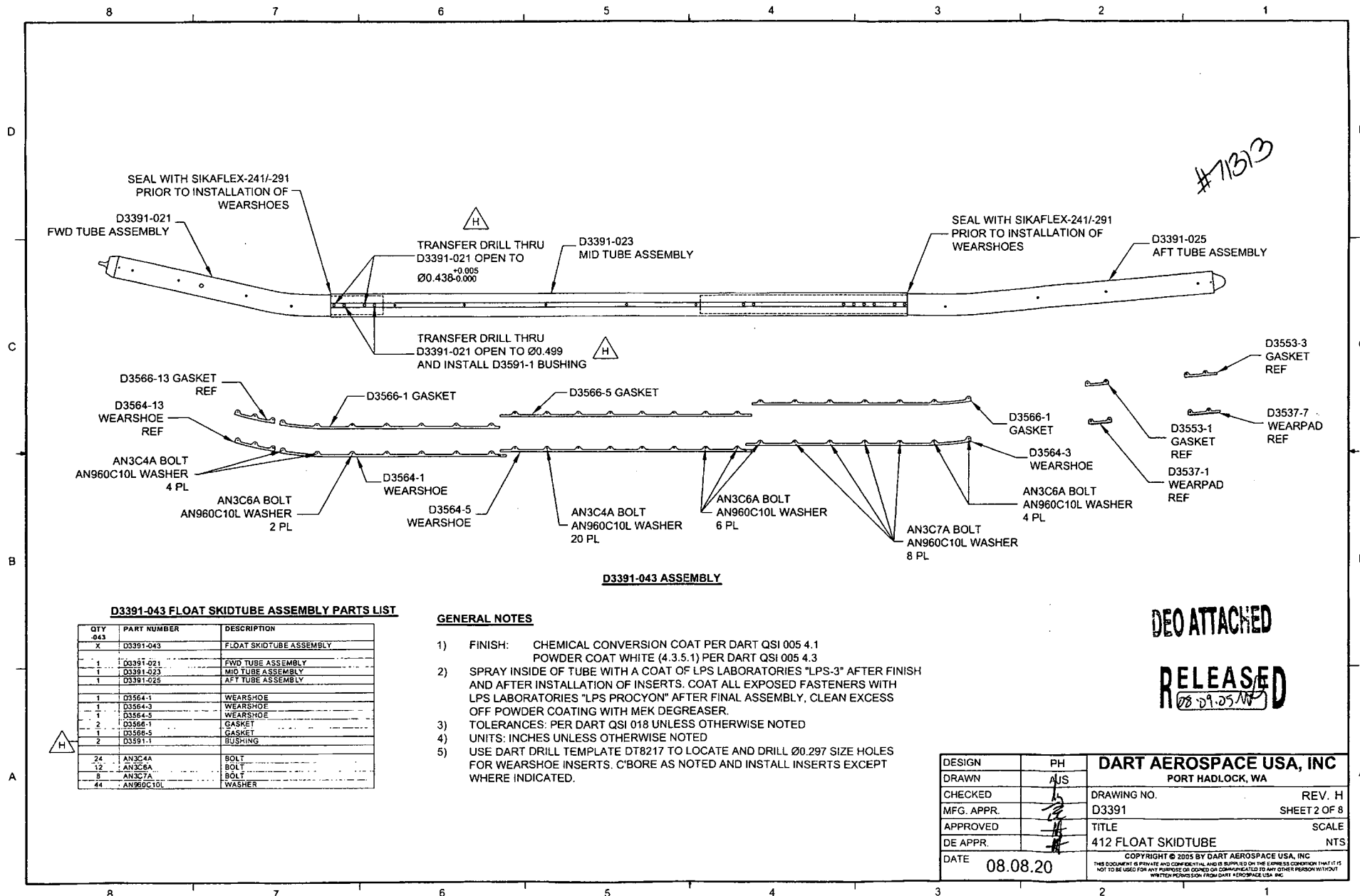
W/O:		WORK ORDER CHANGES					
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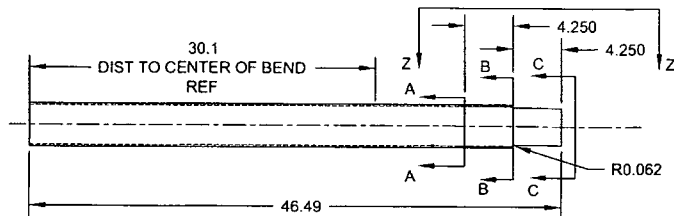
W/O:		WORK ORDER CHANGES					
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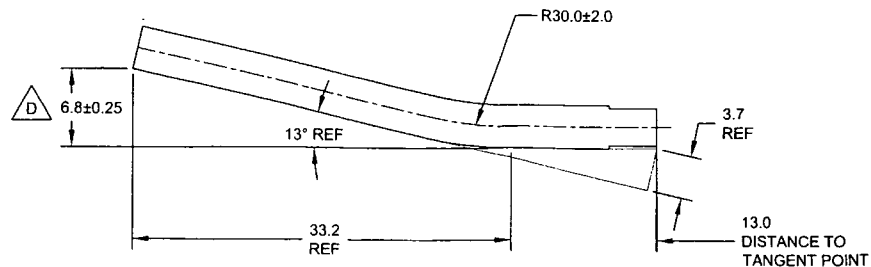
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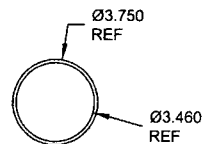
NOTE: Date & initial all entries



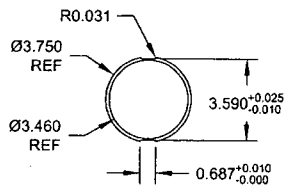
D3391-1 CUTTING DETAIL
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)



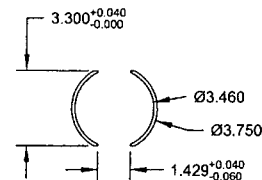
D3391-011/-021 BENDING DETAIL
(MAKE FROM D3391-1)



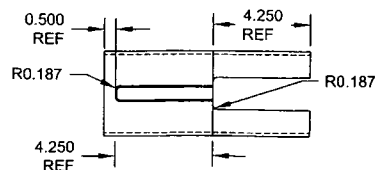
SECTION A-A
SCALE 2X



SECTION B-B
SCALE 2X



SECTION C-C
SCALE 2X



VIEW Z-Z
SCALE 2X

DEO ATTACHED
RELEASED
#71313

DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	AJS	PORT HADLOCK, WA	
CHECKED		DRAWING NO. D3391	REV. H
MFG. APPR.		SHEET 3 OF 8	
APPROVED		TITLE	SCALE
DE APPR.		412 FLOAT SKIDTUBE	NTS
DATE	08.08.20	<small>COPYRIGHT © 2005 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR FOR ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC</small>	

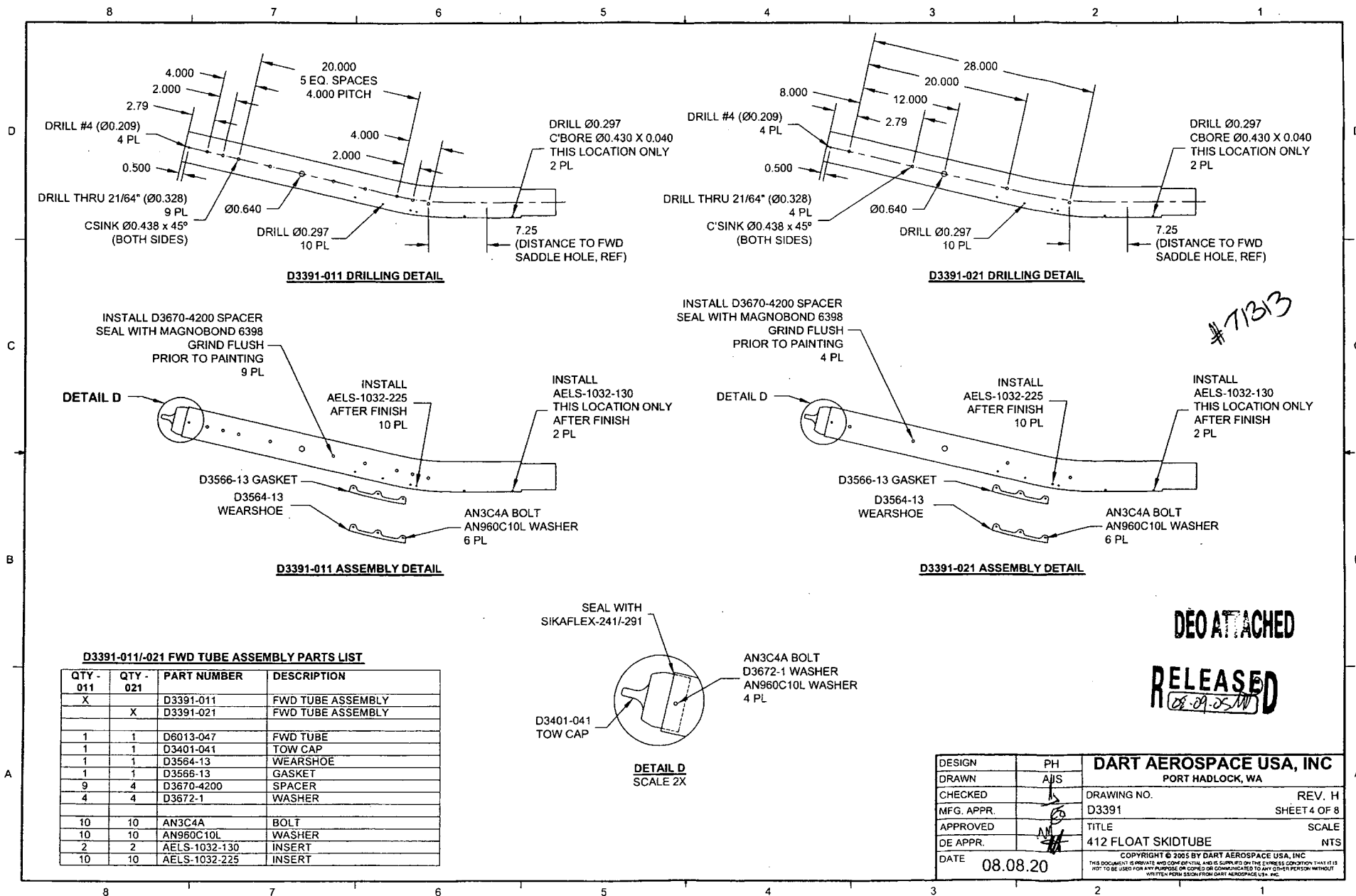
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



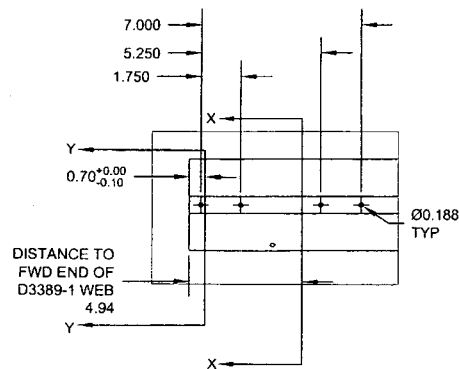
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

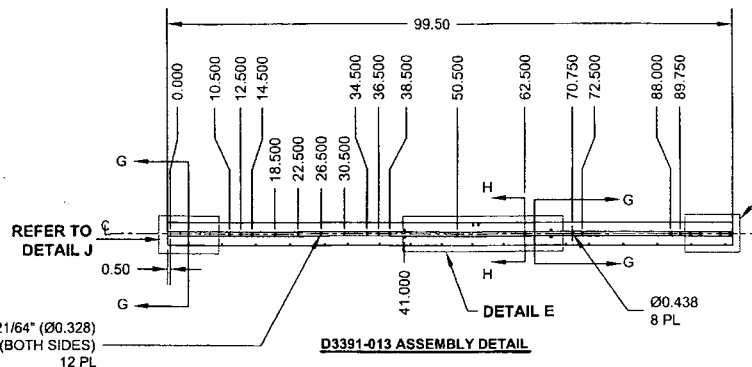
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



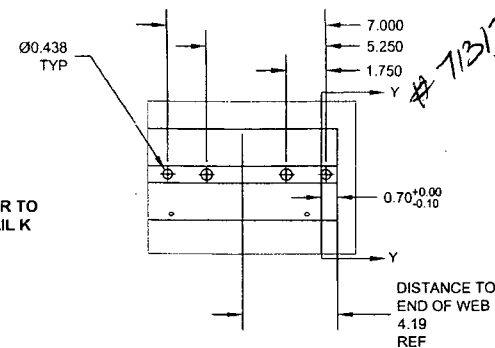
DETAIL J
SCALE 4X

DRILL THRU 21/64" (Ø0.328)
CSINK Ø0.438 X 45° (BOTH SIDES)
12 PL



D3391-013 ASSEMBLY DETAIL
SCALE 5X

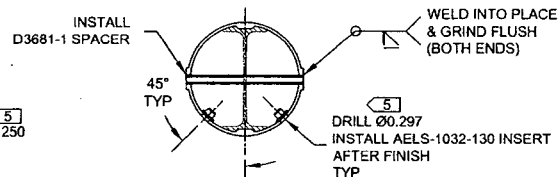
REFER TO
DETAIL K



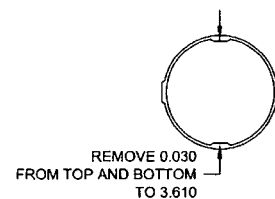
DETAIL K
SCALE 4X



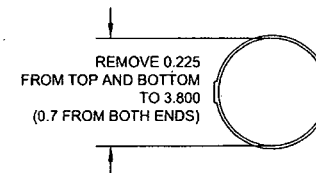
SECTION G-G
SCALE 5X



SECTION H-H
SCALE 5X



SECTION X-X
SCALE 5X



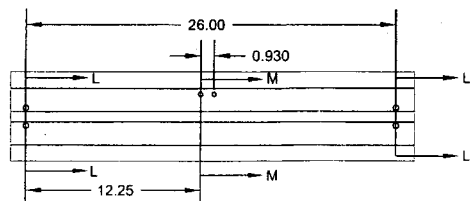
SECTION Y-Y
SCALE 5X

D3391-013 MID TUBE ASSEMBLY PARTS LIST

QTY -013	PART NUMBER	DESCRIPTION
X	D3391-013	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
4	D3672-1	WASHER
4	D3672-3	WASHER
12	D3681-1	SPACER
24	AELS-1032-130	INSERT
4	ALS4-428-165	INSERT
4	AN960C10L	WASHER
4	AN960C416L	WASHER
4	MS27039C1-09	SCREW
4	MS27039C4-08	SCREW

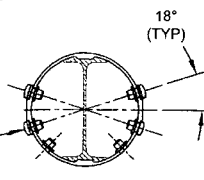
D3391-013 MID TUBE ASSEMBLY

- MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
- INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/291 PER QSI 015
- WELDING: PER DART QSI 004

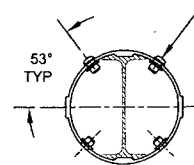


DETAIL E
SCALE NONE

DRILL Ø0.391
INSTALL ALS4-428-165 INSERT
MS27039C4-08 SCREW
D3672-3 WASHER
AN960C416L WASHER
AFTER FINISH
4 PL

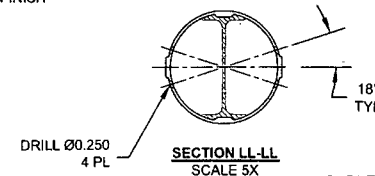


SECTION L-L
SCALE 5X



SECTION M-M
SCALE 5X

DRILL Ø0.297
INSTALL AELS-1032-130 INSERT
MS27039C1-09 SCREW
D3672-1 WASHER
AN960C10L WASHER
AFTER FINISH
4 PL



SECTION LL-LL
SCALE 5X

DEO ATTACHED

RELEASED

DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	AJS	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. H
MFG. APPR.		D3391	SHEET 5 OF 8
APPROVED		TITLE	SCALE
DE APPR.		412 FLOAT SKIDTUBE	NTS
DATE	08.08.20	COPYRIGHT © 2005 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS UNDERSTANDING THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

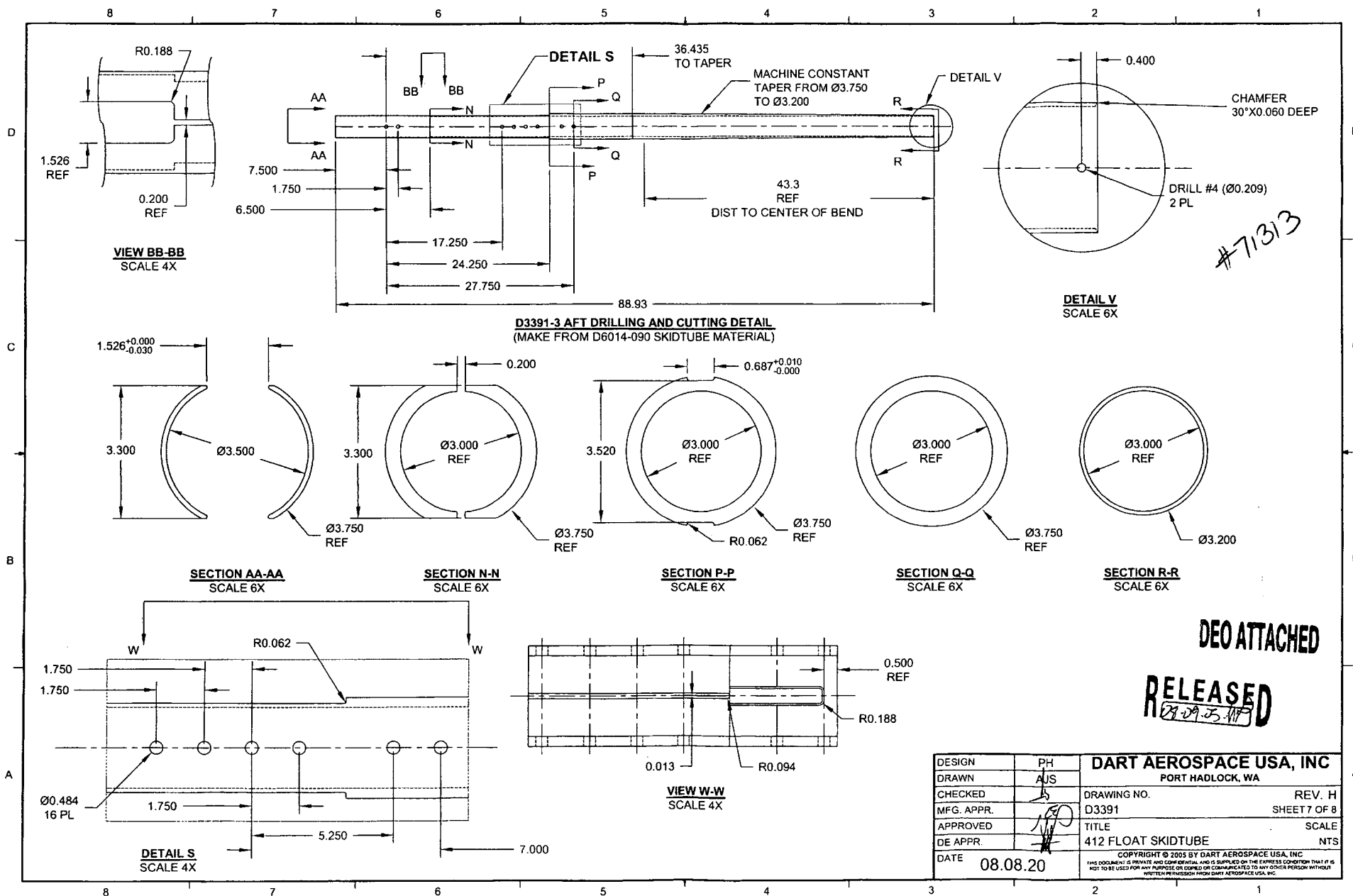
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



DEO ATTACHED

RELEASED
28-09-25-117

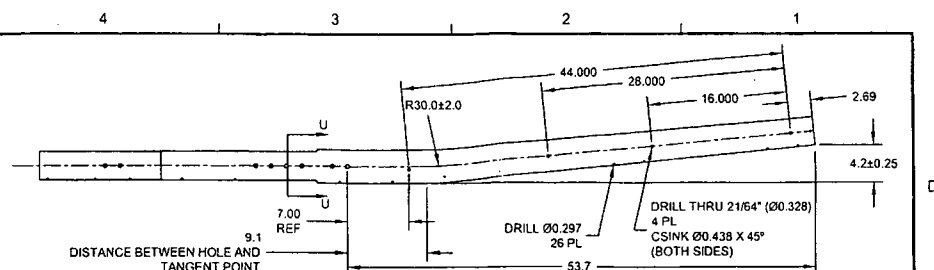
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

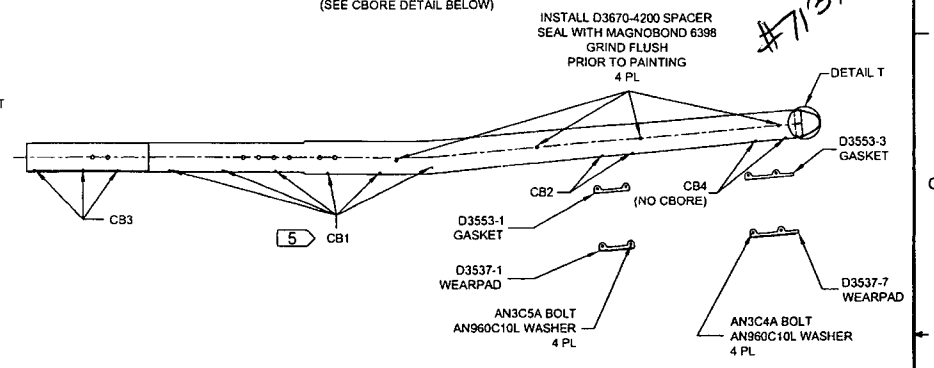
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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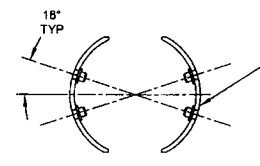
D3391-025 BENDING AND DRILLING DETAIL
(SEE CBORE DETAIL BELOW)



D3391-015 ASSEMBLY AND CBORE DETAIL
(SEE TABLE)

SECTION U-U
SCALE 3X

SECTION U-U
SCALE 3X



SECTION CC-CC
SCALE 3X

D2646 AFT CAP

SEAL WITH
SIKAFLEX-241/291

AN3C4A BOLT
D3672-1 WASHER
AN960C10L WASHER
2 PL

DETAIL I
SCALE 4X

DETAIL T
SCALE 4X

DEO ATTACHED

RELEASE
08-09-05 M

HOLES MARKED	QTY D3391-015	QTY D3391-025	CBORE	P/N
CB1	12	12	Ø0.430 X 0.170	AELS-1032-225
CB2	4	4	Ø0.430 X 0.170	AELS-1032-130
CB3	6	6	Ø0.430 X 0.040	AELS-1032-130
CB4	4	4	NONE	AELS-1032-130

DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	AJS	PORT HADLOCK, WA	
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. H
MFG. APPR.	<i>[Signature]</i>	D3391	SHEET 8 OF 8
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	412 FLOAT SKIDTUBE	NTS
DATE 08.08.20		COPYRIGHT © 2005 BY DART AEROSPACE USA, INC <small>THIS DOCUMENT IS THE PROPERTY OF DART AEROSPACE USA, INC. IT IS TO BE USED FOR ANY PURPOSE OR FOR COMMUNICATION TO ANY OTHER PERSON WITHOUT THE WRITTEN PERMISSION OF DART AEROSPACE USA, INC.</small>	

W/O:		WORK ORDER CHANGES					
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NOTE: Date & initial all entries

DRAWING NO. D3391	TITLE 412 FLOAT SKIDTUBE	REV. H	DART AEROSPACE USA, INC ENGINEERING ORDER		D.E.O. NO. D3391-H-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>UP</i>	CHECKED <i>h</i>	MFG. APPR. <i>MA</i>	APPROVED <i>MP</i>		DE APPR. <i>h</i>		
DATE 09.09.23	DATE 09.09.24	DATE 09/09/25	DATE 09/09/30		DATE 09/09/30		

PURPOSE:

LPS-3 IS NO LONGER USED DURING ASSEMBLY OF D3391-041/-043 SKIDTUBES.

CHANGE:

AMEND NOTE 2 OF D3391-041/-043 SKIDTUBE ASSEMBLIES (ZN A6-1, A6-2) AS FOLLOWS:

- 2) ~~SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH~~
~~AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH~~
LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS
OFF POWDER COATING WITH MEK DEGREASER.

RELEASED
2010-02-02

MP
#71313

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries